

Appl. No. 10/030,735  
 Amdt. dated February 10, 2006  
 Amendment and Reply under 37 CFR 1.116 Expedited  
 Procedure Examining Group 1644

PATENT

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A peptide consisting of the sequence ~~R<sub>1</sub>-X<sub>1</sub>-V-R-~~  
~~X<sub>4</sub>-R<sub>2</sub>~~ R<sub>1</sub>-X<sub>1</sub>-X<sub>2</sub>-X<sub>3</sub>-X<sub>4</sub>-R<sub>2</sub> or partial or full retro-inverso sequences thereof, wherein X<sub>1</sub> is  
selected from the group consisting of N, Q, and D; X<sub>2</sub> is V; X<sub>3</sub> is R; and X<sub>4</sub> is L; the ~~X<sub>1</sub>-V-R-X<sub>4</sub>~~  
sequence is selected from the group consisting of N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID  
NO: 51), Q-V-R-L (SEQ ID NO: 80), Q-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID  
NO:102); R<sub>1</sub> is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and R<sub>2</sub> is from 1  
to 3 amino acids, a hydroxide or an amide, provided that the peptide binds  $\alpha$ 3 $\beta$ 1 integrin and  
does not comprise the sequence FQGVLPQNVRVFV (SEQ ID NO:6).

2. (Currently amended) The peptide of claim 1, wherein the peptide  
 contains the ~~X<sub>1</sub>-V-R-X<sub>4</sub>~~ sequence X<sub>1</sub>-X<sub>2</sub>-X<sub>3</sub>-X<sub>4</sub> and is up to 12 amino acids in length.

3. (Previously presented) The peptide of claim 1 wherein R<sub>1</sub> is a peptide  
 consisting of the sequence selected from the group consisting of FQGVLPQ (SEQ ID NO:13),  
 FAGVLPQ (SEQ ID NO:14), FQGVAPQ (SEQ ID NO:15), FQGVLA (SEQ ID NO:16), and  
 FQGVLPN (SEQ ID NO:17).

4. (Previously presented) A peptide that binds  $\alpha$ 3 $\beta$ 1 integrin, wherein said  
 peptide consists of a sequence selected from the group consisting of FQGVLPQQVRVFV (SEQ  
 ID NO:20), FQGVLPQSVRFV (SEQ ID NO:21), acQGVLPQNVRF (SEQ ID NO:22),  
 FQGVLPNNVRVFV (SEQ ID NO:24), AQGVLPQNVRFV (SEQ ID NO:25),  
 FAGVLPQNVRFV (SEQ ID NO:26), FQGVAPQNVRFV (SEQ ID NO:27),

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FQGV LQNVR FVA (SEQ ID NO:28), FQGV LANVR FVF (SEQ ID NO:29), FQGV LQNVR FV (SEQ ID NO:30), QGV LQNVR FVF (SEQ ID NO:31), and FQGV LQNVR F (SEQ ID NO:32).

5. (Currently amended) The ~~A~~ peptide of ~~claim 1~~ consisting of the sequence  $R_1$ - $X_1$ - $X_2$ - $X_3$ - $X_4$ - $R_2$  or full retro-inverso sequences thereof, wherein  $X_1$  is selected from the group consisting of N and Q;  $X_2$  is V;  $X_3$  is R; and  $X_4$  is F;  $R_1$  is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and  $R_2$  is from 1 to 3 amino acids, a hydroxide or an amide, provided that the peptide binds  $\alpha 3 \beta 1$  integrin, and wherein the  ~~$X_1$ -V-R- $X_4$~~   $X_1$ - $X_2$ - $X_3$ - $X_4$  portion of the sequence is selected from the group consisting of NVRF (SEQ ID NO:51) and QVRF (SEQ ID NO:53).

6-7. (Cancel)

8. (Currently amended) A retro-inverso synthetic peptide consisting of the amino acid sequence, from C-terminal (left) to N-terminal (right):  $ri$ - $R'_1$ - $X'_1$ - $X'_2$ - $X'_3$ - $X'_4$ - $R'_2$ , wherein  $ri$  denotes a retro-inverso peptide sequence and all amino acids are D amino acids; wherein  $X'_1$  is selected from the group consisting of N, Q, and D;  $X'_2$  is V;  $X'_3$  is R; and  $X'_4$  is L; the  ~~$X'_1$ -V-R- $X'_4$~~  sequence is selected from the group consisting of ~~N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID NO: 51), Q-V-R-L (SEQ ID NO: 80), Q-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID NO:102)~~;  $R'_1$  is a hydrogen or from 1 to 6 amino acids, a hydroxide or an amide; and  $R'_2$  is from 1 to 3 amino acids, an acyl or an aryl group.

9. (Currently amended) The peptide of claim 8, wherein the peptide contains the  ~~$X'_1$ -V-R- $X'_4$~~  sequence  $X'_1$ - $X'_2$ - $X'_3$ - $X'_4$  and is up to 12 amino acids in length.

10. (Previously presented) A peptide consisting of the sequence FQGV LQNVR FVF (SEQ ID NO:6) wherein every amino acid in said sequence is a D-amino acid.

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11-12. (Canceled)

13. (Previously presented) A composition comprising a peptide according to claim 1 and a pharmaceutically acceptable carrier.

14. (Previously presented) A composition comprising a peptide according to claim 1 in a sterile aqueous solution.

15-19. (Canceled)

20. (Withdrawn) An *in vitro* method of inhibiting adhesion of a cell expressing  $\alpha 3 \beta 1$  integrin to an extracellular matrix comprising contacting said cell with a peptide according to claim 1.

21. (Withdrawn) The method of claim 20 wherein the extracellular matrix comprises TSP1 or laminins.

22. (Cancel)

23. (Withdrawn) The method of claim 20 wherein said cell comprises an epithelial or an endothelial cell.

24. (Withdrawn) The method of claim 20 wherein said cell is a tumor cell.

25. (Withdrawn) The method of claim 20 wherein said cell is a breast carcinoma cell or a small cell lung carcinoma.

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26. (Withdrawn) An *in vitro* method of inhibiting  $\alpha 3 \beta 1$  integrin-mediated cell motility, comprising contacting a cell with a peptide according to claim 1.

27. (Canceled)

28. (Withdrawn) The method of claim 26 wherein the cell is an epithelial cell, an endothelial cell or a malignant cell.

29. (Withdrawn) An *in vitro* method of inhibiting proliferation of endothelial cells, comprising contacting said cells with a peptide according to claim 1.

30. (Withdrawn) An *in vitro* method of inhibiting proliferation of small cell lung carcinoma cells, comprising contacting said cells with a peptide according to claim 2.

31-45. (Canceled)

46. (Currently amended) A peptide consisting of the sequence  $R_1$ -~~D-V-R-F~~- $R_2$ ,  $R_1$ - $X_1$ - $X_2$ - $X_3$ - $X_4$ - $R_2$  or ~~partial or~~ full retro-inverso sequences thereof, wherein ~~D-V-R-F~~ is SEQ ID NO:54;  $X_1$  is D;  $X_2$  is V;  $X_3$  is R; and  $X_4$  is F;  $R_1$  is a hydrogen or from 1 to 6 amino acids, an acyl or an aryl group; and  $R_2$  is 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds  $\alpha 3 \beta 1$  integrin.

47. (Previously presented) The peptide according to claim 46 consisting of the sequence FQGV LQDVRFVF (SEQ ID NO:19).

48. (Previously presented) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.

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49. (Previously presented) The peptide of claim 46 wherein R<sub>1</sub> is a peptide consisting of the sequence selected from the group consisting of FQGV<sub>1</sub>LQ (SEQ ID NO:13), FAGVLQ (SEQ ID NO:14), FQGV<sub>1</sub>AQ (SEQ ID NO:15), FQGV<sub>1</sub>LA (SEQ ID NO:16), and FQGV<sub>1</sub>LN (SEQ ID NO:17).

50. (Previously presented) The peptide of claim 46 that contains at least one D-amino acid.

51. (Previously presented) A composition comprising a peptide according to claim 46 and a pharmaceutically acceptable carrier.

52. (Previously presented) A composition comprising a peptide according to claim 46 in a sterile aqueous solution.

53. (Previously presented) A retro-inverso synthetic peptide consisting of the amino acid sequence, from C-terminal (left) to N-terminal (right): ri- R'<sub>1</sub>-D-V-R-F-R'<sub>2</sub>, wherein ri denotes a retro-inverso peptide sequence and all amino acids are D amino acids and D-V-R-F is SEQ ID NO:54; R'<sub>1</sub> is a hydrogen or from 1 to 6 amino acids, a hydroxide or an amide; and R'<sub>2</sub> is 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds  $\alpha\beta 1$  integrin.

54. (Previously presented) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.